Versaflo™ 100 Syringe Pump

User's Manual

For Veterinary Use Only

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Versaflo™ 100 Portable Syringe Pump Features

- ✓ Complete portable and light weight
- ✓ Cordless design, with convenient carrying case
- ✓ Bolus function - Adding dosage without interruption of current infusion
- ✓ Scratch-proof syringe cover and carrying/mount case

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PRECAUTIONS

IMPORTANT: USER SHOULD READ THIS ENTIRE MANUAL BEFORE OPERATING THIS PORTABLE SYRINGE PUMP. **SAVE THIS MANUAL FOR YOUR FUTURE REFRENCE!**

WARNINGS:

- CRITICAL! DO NOT USE IN THE PRESENCE OF FLAMMABLE ANESTHETICS!
- DO NOT USE A PUMP, SYRINGE, OR ACCESSORY THAT SHOWS ANY SIGN OF DAMAGE.
- ONLY AUTHORIZED SERVICE PERSONNEL SHOULD REPAIR THIS PUMP. MANUFACTURER ASSUMES NO RESPONSIBILITY FOR INCIDENTS THAT OCCUR IF THE PUMP IS NOT REPAIRED ACCORDING TO MANUFACTURER-AUTHORIZED PROCEDURES.
- BEFORE CONNECTING THE SYRINGE TO THE PATIENT, USER MUST PRIME THE SYRINGE AND EXTENSION TUBE TO PREVENT AIR TO THE PATIENT.
- TAKE THE BATTERIES OUT IF THIS PRODUCT IS LEFT UNUSED FOR A PERIOD OF TIME.
- TO CLEAN THE PUMP, USE A DAMP (NOT WET) CLOTH OR SPONGE. DO NOT IMMERSE PUMP OR POWER CABLE INTO WATER OR OTHER CLEANING SOLUTIONS.
- TO PRESERVE OUR ENVIRONMENT AND CONSERVE OUR NATURAL RESOURCES, RECYCLE BATTERIES AT THE END OF THEIR USEFUL LIFE.

APPLICATION FIELDS

This Portable Syringe Pump is used to deliver medications from a disposable syringe size from **2 to 50/60 ml**. This portable, user-friendly device offers a new alternative for a micro reliable infusion. It can be useful throughout general practices and referral centers, e.g. surgery dept., internal medicine dept., critical care, and oncology dept, etc.

TECHNICAL SPECIFICATIONS

Applicable syringes	2ml - 50 / 60ml* disposable syringes
Linear Flow Rate	1 mm/hr - 99 mm/hr (linear rate)
Flow Rate (Converted based on syringe sizes)	50/60 ml syringes 0.7 up to 65 ml/hr
	20ml syringes 0.35 up to 34 ml/hr
	10 ml syringes 0.1 up to 16 ml/hr
	5ml syringes 0.1 up to 11 ml/hr
Accuracy	less than ± 2 %
Alarms	Audible and Visual Alarms of "COMPLETE / OCCLUSION" and "LOW BATT"
P.C.A. Function (BOLUS)	Easily adding 1/4 of preset dosage by bolus cable without interruption of current infusion. Minimum 30 minutes interval for safety protection
Included Accessories	a) 3 x AA batteries
	b) 1 x BOLUS cable (PCA)
	c) 2 x Syringe protecting cover
	d) 1 x Carrying case
Power Supply	DC 4.5V (3 x AA batteries)
Battery life	30 days or minimum 30 syringes
Dimensions	W 166 × H 60 × D 30 mm (6.5"W × 2.4"H ×1.2"D)
Weight	180 g / 0.55 lb (240g with 3 AA batteries)
	* 50/60ml syringe can fill up to 33ml

OPERATION PROCEDURES

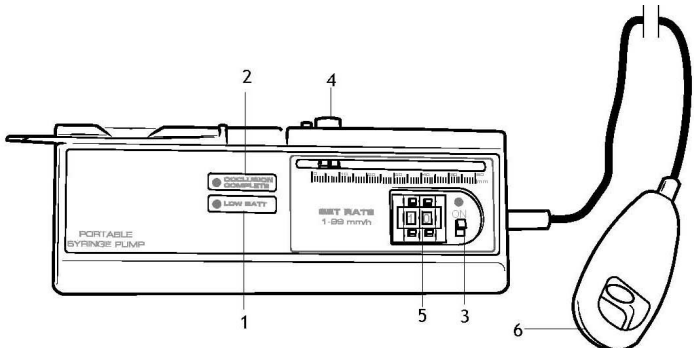
1) Signs and Symbols

a) Type of Protection Against Electric Shock: Type: **BF**

b) Degree of Protection Against Ingress of Fluids: Drip-Proof: **IPX1**

c) Exclamatory mark : CAUTION! Please refer to user's manual.

Keypad Descriptions



1	Low battery alarm
2	COMPLETE/OCCLUSION alarm
3	ON/OFF Switch
4	Syringe driver head
5	Set rate 1 - 99 mm/h
6	BOLUS cable (PCA)

2) Load Syringe

Fill the syringe with desired medication. Load the syringe onto the pump. (Refer to Figure 2.) Place the syringe into the bed. Be sure to insert the nozzle into the syringe slot. Then press and hold the secure button on the driver to bring the driver block into such a position that the extremity of the syringe plunger can be placed into the driver slot. Fasten the rubber strip to secure the syringe.

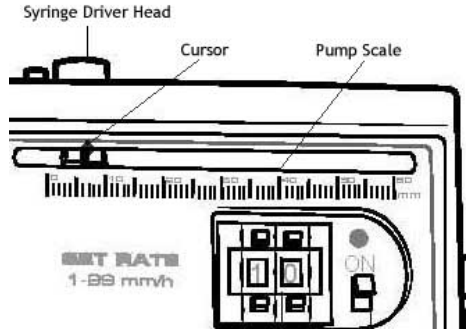
3) Set Infusion Rate

a) Simplified method (without ruler)

To determine the infusion rate of the syringe without ruler:

1. Load the empty syringe on the pump as instruction (refer to previous page Load Syringe)
2. Note the reading of the pump's cursor location.(E.g. 6mm on the pump scale)

3. Move the syringe by holding the syringe driver head by 1 ml according to the reading on the syringe.
4. Note the new reading of the pump's cursor location. (E.g. 10mm on the pump scale)
5. Calculate the difference on the pump's scale reading. (E.g. 10mm – 6mm = 4 mm). The difference is the conversion factor between mm and ml of the current loaded syringe per ml. (E.g. 4 mm = 1 ml, the conversion factor is 4 mm/ml)



6. Set the desired infusion rate by *Formula : Conversion factor x desired ml/hr rate*. (E.g. If the desired driving rate is 10 ml / hr, then the equivalent rate on the pump is 4 mm/ml x 10ml/hr = 40 mm/hr. Therefore, set the driving rate to be: [4 0] on the pump)

b) Comprehensive Method (with ruler)

The graduations of syringes vary in terms of brands and sizes. To ensure an accurate infusion, the pump uses driving speed to calculate the flow rate. Driving speed range is in 1mm/hr increment from 1 mm/hr～99 mm/hr. Staff gauge range is from 0～60 mm. There are two ways to calculate desired flow rate:

(1) Set driving rate by flow rate. First, use a ruler and measure the ml scale to determine mm/ml of each graduation scale. Then, multiply by desired infusion flow rate (ml/hr), and get the driving speed in mm/hr. *Formula: ml/hr × mm/ml = mm/hr*
For example: Use a 10 ml syringe for infusion. The length of each 1 ml scale is 4.5 mm; desired infusion flow rate is 2 ml/hr; then, use the formula to calculate.
4.5 mm/ml×2ml/h= 9 mm/hr Therefore, set the driving rate to be: [0 9]

(2) Set driving rate by infusion volume First, use a ruler and measure the length of medication in the syringe. This is to count the medical solution in mm not ml. Then, divide this number by desired completion time (hr) to determine the driving rate in

mm/hr. *Formula: mm ÷ h = mm/hr* For example: The medication in the syringe is 9 ml. Load this syringe onto the pump, the scale reading of the medication in the syringe is 40 mm in length. The desired infusion time is 5 hours. 40 mm ÷ 5 hr = 8 mm/hr. Therefore, set the driving rate to be: 0 8

4) Start Infusion

Turn on the ON/OFF switch to start infusion. The running indicator will flash during normal operation while the rate setting key is locked. To change the infusion rate, you MUST reboot the pump. Turn off the ON/OFF switch, change the rate and turn on again.

When batteries begin to run down, an audible and visual alarm is activated. When the battery voltage cannot sustain a normal operation, LOW BATT and COMPLETE/OCCLUSION audible and visual alarm will both be activated. When infusion is completed or an occlusion happens, the pump stops operation with an audible and visual alarm. To continue infusion, you MUST correct the error and reboot the pump.

5) Patient Controlled ANALGESIA (PCA)

The pump has a PCA feature. As directed by the DVM, if the PCA feature is required, plug the bolus cable into the pump socket to enable the PCA feature. During a normal infusion, while additional injections may be needed, you can push the button on the bolus cable to inject an additional dosage. Each PCA dosage is 1/4 of the preset delivery dosage. For the safety of the patient and to control the frequency of PCA injections, the interval between two PCA injections is programmed to be no less than 30 minutes.

STORAGE

This product should be stored in an environment with ambient temperature of 14°F-131°F (-10℃- +55 ℃), relative humidity below 93%, and air pressure 500hpa~1060hpa. Do not store close to corrosive vapour and/or harmful impurities.

Versaflo 100 syringe pump can be mounted on the cage using the carrying case included in the package

LIMITED WARRANTY

The Syringe Pump has been carefully manufactured from the highest quality components. The pump is guaranteed against defects in material and workmanship for two (2) years from date of purchase by the original purchaser. Manufacturer's obligation, or that of its designated representative under this Limited Warranty, shall be limited, at our option, to repairing or replacing the pump, which upon examination, is found to be defective in material or workmanship. The repair of replacement of any product under this Limited Warranty shall not extend the above mentioned Warranty period.

All repairs under this Limited Warranty should be undertaken only by qualified, trained service personnel. In the event that a pump is found to be defective during the warranty period, the purchaser shall notify manufacturer or its designated representative within thirty (30) days after such defect is discovered. The defective pump should be sent immediately to manufacturer or its designated representative for inspection, repair or replacement.

Material returned should be properly packaged to avoid severe pump damage.

This Limited Warranty shall not apply to defects or damage caused, wholly or in part, by negligence, spilt fluids, dropping of the pump, misuse, abuse, improper installation or alteration by anyone other than qualified, trained personnel; or to damage resulting from inadequate packaging in returning the pump.

This Limited Warranty is the sole and entire warranty pertaining to manufacturer's products and is in lieu of and excludes all other warranties of any nature whatsoever, whether stated, or implied or arising by operation of law, trade, usage or course of dealing, including buy not limited to, warranties of merchantability and warranties of fitness for a particular purpose. Purchaser expressly agrees that the remedies granted to it under this limited warranty are purchaser's sole and exclusive remedies with respect to any claim of the purchaser arising under this Limited Warranty.